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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,148	06/21/2000	Stuart T. Linsky	22-0124	6922

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EXAMINER	
DEAN, RAYMOND S	

ART UNIT	PAPER NUMBER
2684	

DATE MAILED: 08/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/599,148	LINSKY ET AL.	
	Examiner	Art Unit	
	Raymond S. Dean	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1004,0804,0505*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see amendment, filed May 31, 2005 with respect to the rejection(s)of claim(s) 1 - 22 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art Gillmer (3,860,926). Gillmer teaches a power gating circuit coupled to the power amplifier and including a power gate input responsive to a power gating signal to remove RF power from at least a portion of the waveform, thereby reducing DC power consumption of the power amplifier (See Figure 1, Column 4 lines 50 – 57, the modulator (56) has an input responsive to a signal that causes said modulator to send a signal that causes the power gating of a signal). The satellite of Black is a typical satellite that receives signals on the uplink and retransmits said signals on the downlink (See Column 21 lines 12 – 37). It is well established that such satellites comprise amplifiers for retransmission on the downlink thus Black inherently teaches a power amplifier for amplifying a waveform based in part on the uplink data for transmission. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the satellite of Black with the power gating circuitry of Gillmer for the purpose of creating an creating a power efficient amplifier on board said satellite as taught by Gillmer.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Black et al. (US 6,377,561 B1) in view of Gillmer (3,860,926).

Regarding Claim 1, Black teaches a downlink beam frame signal processing system for a communication satellite, the processing system comprising: a packet switch routing self addressed uplink data to a memory, the memory comprising at least a first and a second downlink beam hop location storage (Figures 8a, 9, 10, 11, Column 20 lines 40 – 59, Column 22 lines 48 – 67, Column 23 lines 1 – 21, Column 23 lines 37 – 67, Column 24 lines 1 – 18); a power amplifier for amplifying a waveform based in part on the uplink data for transmission (Column 21 lines 12 – 37, it is well established that such satellites comprise amplifiers for retransmission on the downlink thus Black inherently teaches a power amplifier for amplifying a waveform based in part on the uplink data for transmission).

Black does not teach a power gating circuit coupled to the power amplifier and including a power gate input responsive to a power gating signal to remove RF power

from at least a portion of the waveform, thereby reducing DC power consumption of the power amplifier.

Gillmer teaches a power gating circuit coupled to the power amplifier and including a power gate input responsive to a power gating signal to remove RF power from at least a portion of the waveform, thereby reducing DC power consumption of the power amplifier (Figure 1, Column 4 lines 50 – 57, the modulator (56) has an input responsive to a signal that causes said modulator to send a signal that causes the power gating of a signal).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the satellite of Black with the power gating circuitry of Gillmer for the purpose of creating a power efficient amplifier on board said satellite as taught by Gillmer.

Regarding Claim 2, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 1. Gillmer further teaches wherein the power-gating signal is indicative of unavailability of a signal (Column 4 lines 50 – 57). Black further teaches the unavailability of uplink data in the memory (Column 21 lines 20 – 23, there will be times when said ports will not receive data on the uplink).

Regarding Claim 3, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 2. Black further teaches wherein unavailability of uplink data comprises too little uplink data to fill a payload field in the waveform (Column 21 lines 20 – 23, the ports receive data with a plurality of sizes thus there can be too little uplink data to fill a payload field).

Regarding Claim 4, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 2. Black further teaches wherein unavailability of uplink data comprises the absence of uplink data in the memory (Column 21 lines 20 – 23, there will be times when said ports will not receive data on the uplink).

Regarding Claim 5, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 2. Black further teaches wherein unavailability of uplink data comprises too little uplink data to fill at least two payload fields in the waveform (Column 21 lines 20 – 23, the ports receive data with a plurality of sizes thus there can be too little uplink data to fill at least two payload fields).

Regarding Claim 6, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 2. Gillmer further teaches wherein the power-gating signal is indicative of a predetermined power requirement (Figure 1, Column 4 lines 50 – 57, the power gating circuitry will operate if certain power requirements are met and thus so will the power gating signal). Black further teaches a satellite power requirement (Figure 8a, the circuitry on board the satellite has certain power requirements).

Regarding Claim 7, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 6. Black further teaches wherein the power requirement comprises an eclipse power requirement (Figure 1, since the satellite is moving in space there can be times when there is an eclipse which prevents the satellite from receiving solar power to power the on board equipment).

Regarding Claim 8, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 2. Gillmer further teaches a power-gating signal (Column 4 lines 50 –

57). Black further teaches signals indicative of a statistical multiplexed estimate of downlink utilization (Column 21 lines 41 – 47, in order for scheduling to occur and in order to determine the level of congestion a multiplexed estimate of downlink utilization will need to occur).

Regarding Claim 9, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 2. Gillmer further teaches a power-gating signal (Column 4 lines 50 – 57). Black further teaches signals indicative of a desired average first hop location queue depth formed in the memory (Column 22 lines 48 – 67, Column 23 lines 1 – 21, Column 23 lines 37 – 67, Column 24 lines 1 – 18).

Regarding Claim 10, Black teaches a method for processing a downlink beam frame signal, the method comprising: switching self addressed uplink data into at least one of a first and second downlink hop location storage area in a memory (Figures 8a, 9, 10, 11, Column 20 lines 40 – 59, Column 22 lines 48 – 67, Column 23 lines 1 – 21, Column 23 lines 37 – 67, Column 24 lines 1 – 18); amplifying a frame signal based in part on the uplink data for transmission (Column 21 lines 12 – 37, it is well established that such satellites comprise amplifiers for retransmission on the downlink thus Black inherently teaches a power amplifier for amplifying a waveform based in part on the uplink data for transmission)

Black does not teach prior to transmission, power gating at least a portion of the frame signal in response to a power-gating signal.

Gillmer teaches prior to transmission, power gating at least a portion of a signal in response to a power-gating signal (Figure 1, Column 4 lines 50 – 57, the modulator

(56) has an input responsive to a signal that causes said modulator to send a signal that causes the power gating of a signal).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the satellite of Black with the power gating circuitry of Gillmer for the purpose of creating a power efficient amplifier on board said satellite as taught by Gillmer.

Regarding Claim 11, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 10. Gillmer further teaches power gating a signal in response to the unavailability of a signal (Column 4 lines 50 – 57). Black further teaches too little uplink data in the memory to fill the payload in the frame signal (Column 21 lines 20 – 23, the ports receive data with a plurality of sizes thus there can be too little uplink data to fill a payload field) and a payload of the frame signal (Column 21 lines 33 – 37, since TDMA is used there will be frames with payloads).

Regarding Claim 12, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 10. Gillmer further teaches power gating a signal in response to the unavailability of a signal (Column 4 lines 50 – 57). Black further teaches too little uplink data in the memory to fill the payload in the frame signal beyond a predetermined threshold (Column 21 lines 20 – 23, the ports receive data with a plurality of sizes thus there can be too little uplink data to fill a payload field) and a payload of the frame signal (Column 21 lines 33 – 37, since TDMA is used there will be frames with payloads).

Regarding Claim 13, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 10. Gillmer further teaches power gating a signal in response to the unavailability of a signal (Column 4 lines 50 – 57). Black further teaches too little uplink data to fill at least two payload fields in the frame signal (Column 21 lines 20 – 23, the ports receive data with a plurality of sizes thus there can be too little uplink data to fill at least two payload fields) and a payload of the frame signal (Column 21 lines 33 – 37, since TDMA is used there will be frames with payloads).

Regarding Claim 14, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 10. Gillmer further teaches wherein the power-gating signal is in response to power requirements (Figure 1, Column 4 lines 50 – 57, the power gating circuitry will operate if certain power requirements are met and thus so will the power gating signal). Black further teaches satellite power requirements (Figure 8a, the circuitry on board the satellite has certain power requirements) and a payload of the frame signal (Column 21 lines 33 – 37, since TDMA is used there will be frames with payloads).

Regarding Claim 15, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 14. Gillmer further teaches wherein the power-gating signal is in response to power requirements (Figure 1, Column 4 lines 50 – 57, the power gating circuitry will operate if certain power requirements are met and thus so will the power gating signal). Black further teaches satellite eclipse power requirements (Figure 1, since the satellite is moving in space there can be times when there is an eclipse which prevents the satellite from receiving solar power to power the on board

equipment) and a payload of the frame signal (Column 21 lines 33 – 37, since TDMA is used there will be frames with payloads).

Regarding Claim 16, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 10. Gillmer further teaches power-gating the signal (Figure 1, Column 4 lines 50 – 57). Black further teaches signals in response to a statistical multiplexed estimate of downlink utilization (Column 21 lines 41 – 47, in order for scheduling to occur and in order to determine the level of congestion a multiplexed estimate of downlink utilization will need to occur) and a payload of the frame signal (Column 21 lines 33 – 37, since TDMA is used there will be frames with payloads).

Regarding Claim 17, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 10. Black further teaches maintaining at least one synchronization field in the frame signal (Column 21 lines 33 - 37, TDMA systems comprise data frames thus there will be a field for frame synchronization).

Regarding Claim 18, Black teaches a downlink beam frame signal processing system for a communication satellite, the processing system comprising: a packet switch routing self addressed uplink data to a memory, the memory comprising at least first and a second downlink beam hop location storage (Figures 8a, 9, 10, 11, Column 20 lines 40 – 59, Column 22 lines 48 – 67, Column 23 lines 1 – 21, Column 23 lines 37 – 67, Column 24 lines 1 – 18); and a waveform generator coupled to the packet switch, the waveform generator comprising a modulator for producing a waveform to be transmitted (Column 21 lines 23 – 29).

Black does not teach a power gating input for carrying a power-gating signal for removing power from at least a portion of the waveform before transmission.

Gillmer teaches a power gating input for carrying a power-gating signal for removing power from at least a portion of the waveform before transmission (Figure 1, Column 4 lines 50 – 57, the modulator (56) has an input responsive to a signal that causes said modulator to send a signal that causes the power gating of a signal).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the satellite of Black with the power gating circuitry of Gillmer for the purpose of creating a power efficient amplifier on board said satellite as taught by Gillmer.

4. Claims 19 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Black et al. (US 6,377,561 B1) in view of Gillmer (3,860,926) as applied to Claim 18 above, and further in view of Fishbein (3,611,372).

Regarding Claim 19, Black in view of Gillmer teaches all of the claimed limitations recited in Claim 18. Black in view of Gillmer does not teach a filter coupled to a modulator output carrying the waveform.

Fishbein teaches a filter coupled to a modulator output carrying the waveform (Column 2 lines 57 – 59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the filter taught by Fishbein in the satellite of Black in view of

Gillmer for the purpose of eliminating Doppler signals caused by ground clutter as taught by Fishbein.

Regarding Claim 20, Black in view of Gillmer and in further view of Fishbein teaches all of the claimed limitations recited in Claim 19. Fishbein further teaches wherein the waveform has frequency content removed in a passband region of the filter (Column 2 lines 57 – 59, when transmission is stopped frequency content will be removed). Gillmer further teaches frequency content removal in response to the power-gating signal (Column 4 lines 50 – 57, the power gating will remove the signal and thus the frequency content).

Regarding Claim 21, Black in view of Gillmer and in further view of Fishbein teaches all of the claimed limitations recited in Claim 19. Fishbein further teaches wherein the waveform has frequency content removed in a passband region of the filter (Column 2 lines 57 – 59, when transmission is stopped frequency content will be removed). Gillmer further teaches frequency content removal in response to the power-gating signal (Column 4 lines 50 – 57, the power gating will remove the signal and thus the frequency content). Black further teaches a first payload section of the waveform (Column 21 lines 33 – 37, since TDMA is used there will be frames with payloads).

Regarding Claim 22, Black in view of Gillmer and in further view of Fishbein teaches all of the claimed limitations recited in Claim 21. Fishbein further teaches wherein the waveform has frequency content removed in a passband region of the filter (Column 2 lines 57 – 59, when transmission is stopped frequency content will be removed). Gillmer further teaches frequency content removal in response to the power-

gating signal (Column 4 lines 50 – 57, the power gating will remove the signal and thus the frequency content). Black further teaches a second payload section of the waveform (Column 21 lines 33 – 37, since TDMA is used there will be frames with payloads).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S. Dean whose telephone number is 571-272-7877. The examiner can normally be reached on 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

On July 15, 2005, the Central FAX Number will change to **571-273-8300**. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus. Most facsimile-transmitted patent application related

correspondence is required to be sent to the Central FAX Number. To give customers time to adjust to the new Central FAX Number, faxes sent to the old number (703-872-9306) will be routed to the new number until September 15, 2005. After September 15, 2005, the old number will no longer be in service and **571-273-8300** will be the only facsimile number recognized for "centralized delivery".

CENTRALIZED DELIVERY POLICY: For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the Central FAX number, unless an exception applies. For example, if the examiner has rejected claims in a regular U.S. patent application, and the reply to the examiner's Office action is desired to be transmitted by facsimile rather than mailed, the reply must be sent to the Central FAX Number.

Raymond S. Dean
August 16, 2005

EDAN ORGAD
PATENT EXAMINER/TELECOMM.
E.O. 8/16/05